IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Barrington Herman	Attorney Docket No.:	WEYE121341/24873
Application No.:	10/727,446	Art Unit:	3643 / Confirmation No: 7090
Filed:	December 3, 2003	Examiner:	Jeffrey L. Gellner
Title:	USE OF A LOW NITROGEN FERTILIZER TO PROPAGATE SHOOTS FROM A LOG		

APPELLANT'S REPLY BRIEF

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TO THE COMMISSIONER FOR PATENTS:

This brief is being filed in accordance with 37 C.F.R. § 41.41(a) and in response to an Examiner's Answer mailed on April 16, 2007.

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ARGUMENT

The Rejection of Claims 1-6 and 10-16 Under 35 U.S.C. § 103(a) as Being Allegedly Unpatentable over Radwan et al., *New Forests* 3:21-30 (1989) in View of Saul et al., Forest Research Note No. 33 (1982)

Claim 1 recites the step of applying a fertilizer solution that comprises less than about 0.01% (w/v) nitrogen to a member of the group consisting of an Alder log, a Beech log and a Birch log, in an amount sufficient to promote the growth of shoots from the log.

Applicant maintains that the Examiner has failed to establish a *prima facie* case of obviousness because the cited references fail to teach or suggest all the claim limitations.

In connection with the rejection of Claims 1-6 and 10-16 under 35 U.S.C. § 103(a) over Radwan et al., *New Forests* 3:21-30 (1989) in view of Saul et al., Forest Research Note No. 33 (1982), the Examiner's Answer, mailed April 16, 2007, sets forth, for the first time, the position as follows:

> Radwan et al. states that the logs (cuttings) are subjected to an 'overhead mist' at page 24. This is considered to be a mist of water. *Water is a very, very weak fertilizer* and meets Applicant's claim language of less than 0.01% (w/v) nitrogen because tap water does not contain nitrogen.

(Examiner's Answer, page 7 (emphasis added.))

Contrary to the Examiner's assertion that Radwan et al. discloses the use of a mist of water as a weak fertilizer, it is noted that there is no teaching or suggestion in Radwan et al. that the mist contains any fertilizer, nor any teaching that describes water as a weak fertilizer. Therefore, Applicant maintains that even if the cited references were to be combined, which there is no motivation to do, none of the cited references describe or suggest the use of a fertilizer solution comprising less than 0.01% nitrogen to promote the growth of shoots from a log, as claimed.

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As previously noted, the use of the term "fertilizer" in the instant specification is consistent with the ordinary meaning of the term. (See Applicant's Appeal Brief, page 13.) For example, as described in the specification:

> [t]he present inventors have observed that fertilizers that include substantial amounts of nitrogen are detrimental to the growth of shoots on Alder, Beech and Birch logs. Consequently, in the practice of the present invention, Alder, Beech or Birch logs are nourished with a fertilizer that includes no more than about 0.01% (w/v) nitrogen. Some fertilizers useful in the practice of the present invention typically also include potassium and phosphorus and may optionally contain copper which is both a nutrient and an anti-fungal agent.

(Specification at page 3, lines 21 to 29. See also specification at page 3, line 30, to page 4, line 24.)

It is also noted that in the specification the term "water" is distinct from the term "fertilizer." For example, as stated in the specification:

> [t]he *water* used to mist the logs *includes a low concentration of fertilizer* that does not contain nitrogen. The misting solution is applied at a rate of one liter per square meter per day (which supplies 1.1g K_2H, 1.1g KH_2 and 0.012g STEM per square meter per day). The conductivity of the fertilizer solution applied to the logs is periodically measured to monitor the amount of salts in the misting system.

(Specification at page 8, lines 15-21.)

Consistent with the ordinary meaning of the term "fertilizer" in the specification, it is noted that a distinction is also made in Radwan et al. between the term "water" and the term "fertilizer solution." For example, with reference to water, Radwan et al. describes the use of a water dip as a control treatment (page 23), which is also referred to as the "untreated control" at page 27, Table 2. With reference to fertilizer, Radwan et al., describes that "each tree was fertilized with 2 kg of a 10-20-20 commercial fertilizer" at page 23. As would be known by those of skill in the art, a 10-20-20 commercial fertilizer contains 10% nitrogen. As further stated in Radwan, "plants were periodically fertilized with full-strength Hoagland solution #1

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(Hoagland and Arnon 1950)" at page 25. As described below and shown in Table 1, full-strength Hoagland solution contains nitrogen both in the form of ammonium (1.0 mM NH_4) and in the form of nitrate (13.0 mM NO_3).

Therefore, it is demonstrated that Radwan et al. fails to teach or suggest the step of applying a *fertilizer solution, that comprises less than about 0.01% (w/v) nitrogen*, to a member of the group consisting of an Alder log, a Beech log and a Birch log, in an amount sufficient to promote the growth of shoots from the log. As previously noted, Saul et al. does not disclose the use of a fertilizer solution comprising less than about 0.01% (w/v) nitrogen, and thus fails to cure the deficiencies of Radwan et al. Moreover, as previously noted, the method of Radwan et al. is performed on living trees in contrast to logs (cut timbers) in the present invention.

Accordingly, Applicant submits that the obviousness rejection of Claims 1-6 and 10-16 over Radwan et al. in view of Saul et al. is improper. Reversal of this ground of rejection is respectfully requested.

The Rejection of Claims 7-9 Under 35 U.S.C. § 103(a) as Being Allegedly Unpatentable over Radwan et al., *New Forests 3*:21-30 (1989) in View of Saul et al., Forest Research Note No. 33 (1982) and Further in View of Huss-Dannel et al., *Physiol. Plant. 49*(2):113-116 (1980)

In connection with the rejection of Claims 7-9 under 35 U.S.C. § 103(a) over Radwan et al., *New Forests 3*:21-30 (1989) in view of Saul et al., Forest Research Note No. 33 (1982), and further in view of Huss-Danell et al., the Examiner's Answer, mailed April 16, 2007, asserts that it would have been obvious to further modify the method of Radwan et al. as modified by Saul et al. by using the fertilizer solution of Huss-Danell et al. so that the shoots have adequate nutrition to ensure healthy growth. Applicant disagrees with the Examiners conclusions for the following reasons.

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It is noted that Claim 7 depends from Claim 1 and therefore includes the step of applying *a fertilizer solution that comprises potassium and phosphorus and less than about 0.01% (w/v) nitrogen* to a log in an amount sufficient to promote the growth of shoots from the log. Claim 8 depends from Claim 7 and recites that the fertilizer solution further comprises copper. Claim 9 depends from Claim 1 and recites that the fertilizer solution comprises a vitamin.

The Examiner acknowledges that Radwan et al. and Saul et al. fail to disclose a fertilizer solution comprising K, P and Cu. The Examiner characterizes Huss-Danell et al. as disclosing the use of a fertilizer containing P, K and Cu in tissue culture of Alder, relying on the disclosure of Hoagland Nutrient Solution at page 114, line 1, and concludes it would be obvious to modify the fertilizer solution of Radwan et al. as modified by Saul et al. to include K, P and Cu.

Applicant maintains the Examiner has failed to establish a *prima facie* case of obviousness because even if the cited references were to be combined, which there is no motivation to do, none of the cited references describe or suggest the use of a fertilizer solution comprising less than 0.01% nitrogen to promote the growth of shoots from a log, as claimed.

Claims 7-9 depend from Claim 1 and are believed to be patentable over Radwan et al. and Saul et al. for at least the reasons set forth in Applicant's Appeal brief and as further described above. It is submitted that Huss-Danell et al. does not cure the deficiencies of Radwan et al. or Saul et al. in any combination, because none of the cited references teach or suggest the use of a fertilizer solution that comprises potassium and phosphorus *and less than about 0.01% (w/v) nitrogen,* on a log in an amount sufficient to promote the growth of shoots from the log, as claimed.

Hoagland's Nutrient Solution is provided below in Table 1 (reproduced from Table 1 in Gothberg, A. et al., *J. Environ. Qual. 33*:1247-1255 (2004), citing to Eliasson, L., *Physiol. Plant. 43*: 13-18 (1978)).

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TABLE 1: Composition of 100% Hoagland Nutrient Solution (Gothberg et al.)

Component	Concentration
Cations	
K^+	11.5 mM
Ca^{2+}	3.0 mM
NH_4^+	**1.0 mM**
Mg^{2+}	2.0 mM
Mn^{2+}	16 μM
Cu^{2+}	0.116 μM
Zn^{2+}	0.347 μM
Na^+	19.2 μM
Mo^{6+}	0.207 μM
Fe^{3+}	18.5 μM
B^{3+}	10 μM
Anions	
NO_3^-	**13.0 mM**
PO_4^{3-}	2.0 mM
SO_4^{3-}	2.0 mM
Cl^-	87.5 μM
EDTA	18.8 μM

As shown above in TABLE 1, Hoagland's Nutrient Solution contains nitrogen both in the form of ammonium (1.0 mM NH_4) and in the form of nitrate (13.0 mM NO_3), in contrast to the claimed invention which requires a fertilizer solution that comprises *less than about 0.01% (w/v) nitrogen.* Absent some teaching or suggestion, one of skill in the art would not be motivated to

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modify the Hoagland's solution or any other fertilizer solution described in the cited references (*e.g.* the 10:20:20 commercial fertilizer used in Radwan et al.) in order to reduce the nitrogen content to less than 0.01% (w/v) and apply said fertilizer solution to a log (cut timber) in an amount sufficient to promote the growth of shoots from the log, as claimed.

Consequently, it is submitted that the subject matter of Claims 7-9 is not obvious in view of the teachings of Radwan et al., Saul et al. and Huss-Danell et al. Accordingly, reversal of this ground of rejection is respectfully requested.

CONCLUSION

For at least the foregoing reasons, Applicant respectfully submits that Claims 1-16 are in condition for allowance. Accordingly, Applicant requests reversal of the rejections of Claims 1-16 under 35 U.S.C. § 103(a).

Respectfully submitted,

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